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AUTHOR Rucker, Chauncy N.; And Others
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ABSTRACT

The Connecticut Special Education Network for Software Evaluation is intended to help special educators learn about effective software. The network has developed a software evaluation model and instrument which solicits both descriptive and evaluative information on special education courseware. A needs assessment performed in the state in 1983 revealed patterns of access to computers and a need for high quality courseware for students with learning disabilities. Twenty-eight teachers have been trained in software evaluation. Evaluation results will be disseminated via a newsletter. (CL)

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# THE CONNECTICUT SPECIAL EDUCATION NETWORK FOR SOFTWARE EVALUATION (ConnSENSE)

CHAUNCY N. RUCKER
FRANCIS X. ARCHAMBAULT, JR.
KRISTIE Y. DAVIS

## ABSTRACT

This presentation overviews the activities of the Connecticut Special Education Network for Software Evaluation (ConnSENSE). The overall goal of this project is to develop and field test a statewide model that evaluates the effectiveness of special education microcomputer software and to disseminate the results within Connecticut and beyond. To insure that this goal is achieved, we have developed a software evaluation model and instrument, conducted a software needs assessment, trained teachers and administrators to evaluate software, evaluated microcomputer software, developed a dissemination model to be used by the Connecticut state Department of Education, and developed a special education microcomputer users group. We believe that these activities are helping special education teachers and administrators throughout Connecticut to select more effective microcomputer software and thereby to deliver a higher quality instruction to handicapped children.

During the past week, IBM rocked the computer industry by announcing a new family of integrated software designed to challenge the ever-expanding set of highly successful but smaller software companies (Rasie, 1984). Given current software sales of about $2.7 billion and projected sales of $23.5 billion by 1989, this move into the software business arena might have been anticipated. But the issue of access to quality software designed for educational applications remains. In fact, many analysts and experts, including Terrel Bell, U.S. Secretary of Education, have argued that this is precisely the issue that will determine whether microcomputers can have their much heralded long-term educational impact (Bell, 1984).

The Connecticut Special Education Network for Software Evaluation (ConnSENSE) was funded by the Connecticut State Department of Education, Bureau of Student Services, as a vehicle for insuring that special educators throughout the state have access to information on "software that works." During the past year this project began the long and arduous process of software evaluation and information dissemination. Below is an overview of the project, the procedures which we used for software evaluation and dissemination, and our achievements to date.

## Project Design

### General Design

The overall goal of Connecticut's Special Education Network for Software

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Evaluation (ConnSENSE) has been to develop and field test a statewide model to evaluate the effectiveness of special education microcomputer software and to disseminate the results on a statewide basis. To achieve this overall goal the project has developed a software evaluation model and instrument, conducted a software needs assessment, training teachers and administrators to evaluate software, evaluated microcomputer software, developed a dissemination model that can be used by the Connecticut State Department of Education, and developed a special education microcomputer users group. Details on these activities follow.

## Special Education Software Evaluation Instrument

Several approaches have been proposed for the evaluation of educational software. However, only a few have been developed with the specific needs of the handicapped in mind. Consequently, ConnSENSE's first major activity was to develop a model and instrument for the evaluation of special education software. The ConnSENSE Courseware Evaluation Form that emerged relies on previous work in the general area of software evaluation (e.g. Microsift, EPIE, MCE Inc., etc.), while being sensitive to the specific needs of handicapped children.

Consistent with much of the literature on evaluation in general and software evaluation in particular, our instrument calls for both descriptive and evaluative information. Descriptive information includes general concerns (e.g., title, author, publisher, etc.), hardware concerns (e.g., memory requirements, disk and printer requirements, need for speech synthesizer, etc.), publisher support policies (e.g., preview, backup, and guarantee), publisher claims concerning suitability for specific handicapping conditions, and general program goals and objectives.

Evaluative information is provided on a five-point Likert Scale for specific items relating to the general categories of Program Documentation (e.g., availability of supplementary teacher and student material, operating instructions, etc.), educational validity (e.g., content accuracy, adherence to accepted learning/teaching practices, relationship between content and objectives, etc.), Presentation/Instructional Quality (e.g., suitability of screen displays, use of branching and feedback, availability of help screens, etc.), and Technical Qualities (e.g., reliability, ease of use for designated population, etc.). In addition to ratings for individual items, an overall rating is also provided for each of the general categories. Evaluators are also given the opportunity to comment on strengths and weaknesses. A four-point Likert Scale (4=excellent, 3=good, 2=fair, 1=poor) is used for the overall rating.

Although we feel that this information is important for an overall evaluation of educational courseware, much of what has been described can be found in instruments designed for the evaluation of software produced for the general population of students. However, it is "special education courseware" which is the major concern of this project. Thus, based in part on work by Rucker and Vautour (1978), we have included two other general sections on our instrument. The first concerns the level of skill required for the student to use the software. The second concerns the extent to which the software can be modified so that it might be used by children with various handicapping conditions. With information in the first of these areas, a special education teacher will be able to decide whether the courseware matches the skill level of a particular student, regardless of whether the courseware was developed for handicapped children. With information in the second area this same teacher will be able to decide whether courseware that doesn't fit a particular skill level can

be modified for a particular student. It is these two areas in the ConnSENSE Courseware Evaluation Form that are unique to the needs of handicapped students.

Looking first at the skills category, we ask evaluators to provide information on the software's reading level and interest level. A continuum of manual dexterity is provided ranging from the used of paddles to touch typing. To accommodate the visually handicapped, a continuum of text size is included. Some of the other skill areas include color discrimination, speech (for voice activated programs), hearing level, eye-hand coordination, and sequential memory requirements.

Rucker and Vautour (1978) proposed a rationale for modifying IEPs for handicapped children that has utility in terms of modifying courseware for handicapped children. These modifications fall into the four areas of presentation, performance, content, and time. Presentation modifications in the instrument include print size, use of a speech synthesizer, and graphics. Performance modifications address ways a student displays mastery of a specific skill or concept. Examples in the instrument include input via voice, switches, light pen, etc. Examples of content modifications are programs that allow the teacher to input spelling words or letters for a letter recognition exercise. Two additional items that don't quite fit these categories, but are nontheless important, have also been included in the evaluation instrument. These are the kind of feedback presented (e.g., sound, graphics, and animation), and the type of reinforcement schedule utilized (e.g., consistent or random). The last part of our instrument provides evaluators with an opportunity to give an overall assessment of the courseware and to offer some summarized comments on the courseware's strengths and weaknesses. It displays a rating for each of the four major evaluation areas plus an overall "grade." There are also comments on the skill level required and any modifications possible. Finally, there are summary statements on the suitability of the courseware with particular groups of children.

The ConnSENSE Courseware Evaluation Form was reviewed by various content experts in special education and modified, based on their comments. The form was then field tested at the University of Connecticut with the first cadre of software evaluators in March of 1984. Further modifications were made after this session. The second cadre of evaluators (May, 1984) contributed additional modifications that resulted in the present form of the instrument. Software used by special educators can be categorized into either management software (e.g., IEP development, record keeping, etc.) or courseware. Further, within the latter grouping is material designed for most children for "regular" education and material that publishers claim is specifically designed for handicapped children or can be modified for them. Although the ConnSENSE Courseware Evaluation Instrument was designed with this latter type of software in mind, it can be used to evaluate either type of courseware. However, the instrument is not suited to the evaluation of management software. The SECTOR project at Utah State University has developed an instrument for this purpose.

## Evaluate Connecticut Special Education Microcomputer Software Needs

ConnSENSE completed a Connecticut special education microcomputer software needs assessment in October of 1983. Some of the results of that survey are:

1. Eighty-seven percent of the school districts had one or more computers available for special education students.
2. Seventy-six percent had Apples (range 1-157), 39 percent had Radio Shacks, and 26 percent had Commodores. Three percent had Ataris or Texas Instruments,

and we only found one IBM being used for instruction with handicapped students.

3. Special education students usually gained access to microcomputers in a special class or resource room (79 percent), but they also used them in regular classes (57 percent) and computer rooms (53 percent).
4. Over half of the respondents indicated a severe need for high quality courseware for children with learning disabilities.
5. Microcomputers were being used most for computer instruction (63 percent) and word processing (43 percent).
6. Areas of future need focus primarily on administrative uses of microcomputers, such as record keeping and IEP development.

## Select and Train a Cadre of Special Education Evaluators

The Connecticut Special Education Resource Center (SERC) announced the project in a special October 1983 mailing. This described the project and solicited special education teachers and administrators actively using microcomputers who wanted to be trained in using our software evaluation instrument. A similar request for volunteers was included in the first project Newsletter. We planned to select a cadre of about 20 people to train from those that responded.

Over 300 people responded to the first mailing, however, and 75 percent of them indicated that they wanted training in software evaluation. Moreover, this number grew to over 500 after publication of our Newsletter. Although the project did not plan to train more than 20 teachers, we ended up training two groups of 14. In addition, as will be discussed below, we made arrangements with Connecticut State Department of Education so that the needs of those still interested could be addressed.

The training involves a thorough description of the instrument, trial use of the instrument to evaluate a particular piece of software, and comparisons of responses on the evaluation instrument to this software. After this the cadre began evaluating other pieces of software from the project collection.

## Obtain and Evaluate Special Education Microcomputer Software

Project staff wrote to software producers to request their cooperation in our evaluation effort. The initial list of companies was drawn from the LINC Resources list. Response to this first request was slow, probably because we wrote to companies without having the names of appropriate company officials. Nonetheless, we got the impression that some companies were reluctant to provide free copies of software for review. Thus, we decided to purchase our software. This solves the problem of supply and also resolves any conflicts that might result from receiving free software.

As the software began arriving, the project staff reviewed it to determine whether it was (a) relevant to special education instruction or management, (b) in an area that fits established Connecticut special education microcomputer needs, and (c) free of major technical errors. Software which meets these criteria is evaluated by at least four of our cadre of special education software evaluators having the particular expertise required. Their reports are assembled into an overall evaluation review by the project staff, and this review will appear in the next issue of the ConnSENSE Bulletin.

## Dissemination Model

The project has assisted the Connecticut State Department of Education in the development of a model for disseminating the results of software evaluations across the state. The

ConnSENSE Bulletin, mentioned earlier, is the major component of the dissemination model. The first mailing of the newsletter (January, 1984) was sent to (a) all special education administrators and supervisors throughout the state, (b) others who may have attended the first Connecticut Microcomputer Conference on Special Education (10/82), and (c) those who responded to the announcements in various publications. Our aim was to disseminate the Newsletter to all special education administrators, supervisors, teachers, pupil personnel workers, and others, including parents, interested in special education microcomputer software.

Three issues of the ConnSENSE Bulletin were published during the 1983-84 year. The content of the first has been described above. The second Newsletter went out in April and described the results of the needs assessment questionnaire and provided insights on special education hardware and software usage in Connecticut. It also included comments received regarding the more popular special education software. This issue contained our first set of five courseware reviews. The newsletter also contained statewide highlights regarding computer usage with handicapped students, a question and answer section, and a calendar of computer events. In this and the following newsletter, the readers were encouraged to consider attempting in-depth field studies in their school district. Finally, the readers were encouraged to join SpecialNet so we could expand our computer network. A third issue published in August contained similar information as well as 15 additional courseware reviews.

ConnSENSE constitutes a users group of people interested in computers and the needs of handicapped students. Our membership is over 900 at this point. The project supported an annual ConnSENSE meeting at the University of Connecticut in July of 1984. Nearly 200 members attended a day of workshops and presentation highlighted by a keynote presentation on the DLM Arcademics Software by Jerry Chaffin and Barbara Thompson.

### First Year Reflections

In reviewing our first year of operation, we feel we have accomplished a great deal. We have an instrument that is providing useful information for software reviews. We have completed a statewide needs assessment on computer use with handicapped students. We have trained in excess of 30 teachers and educators in software evaluation. Have evaluated more than 20 pieces of software and published the reviews statewide. Our Bulletin seems to be popular and useful. We have a very large group of special educators interested in computers and the needs of handicapped learners. This group has held its first meeting, and the future looks good for continued exchanges of ideas.

The future looks bright for ConnSENSE. The State Department of Education, through SERC, will fund at least six one day software evaluation workshops at regional locations as in the Fall of 1984. These should include at least 240 special education teachers and administrators. We will attempt to pick the most promising evaluators from these workshops to return for another day of evaluations. We hope to evaluate at least 50 more pieces of software and publish these evaluations in three issues of the ConnSENSE Bulletin.

During the first phase of the ConnSENSE project we had hoped to conduct a feasibility study of computer networking within Connecticut. Fortunately, the State Department of Education issued a Request for Proposals on this subject, and, as a result, we will be moving in this area. A new project, ConnNET, has been funded by the Connecticut State Department of Education, Bureau of Student Services, and will be housed at the University of Connecticut Special Education Center. Its activities will include: initiating Connecticut bulletin board

on SpecialNet, developing and disseminating a Connecticut SpecialNet, evaluating telecommunications equipment needs of Connecticut school districts, selecting 30 school districts for SpecialNet subscriptions and training, training local school district and State Department staff in SpecialNet use, and developing a technical assistance plan for the state to use in continuing ConnNet activities.

These activities, combined with those begun during the past year, will allow us to take another step toward improving computer education services within our state. Moreover, by collaborating with other states also engaged in software evaluation and telecommunication activities (e.g., Florida, Utah, and Kansas) we may be able collectively to make strides that none of us could make alone.

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